

P19296.A08

in said matrix material, wherein a thermal conductivity of said fillers is considerably higher than a thermal conductivity of said matrix material;

at least a portion of said fillers comprising metallic fillers arranged to improve thermal conductivity of said elastic coating layer, wherein said roller is structured and arranged for smoothing paper webs.

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amended

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**REMARKS**

***Summary of the Amendment***

Upon entry of the above amendment, claim 1 will have been amended. Accordingly, claims 1 - 60 remain currently pending, however, claims 4 - 10, 37, 40, and 42 - 60, directed to the subject matter of the non-elected species or invention, have been withdrawn from consideration, such that claims 1, 2, 11 - 27, 29 - 36, 38, 39, and 41 are currently under consideration.

***Summary of the Official Action***

In the instant Office Action, the Examiner has rejected claims 1, 2, 11 - 27, 29 - 36, 38, 39, and 41 based upon formal matters and claims 1 - 3, 11 - 27, 29 - 36, 38, 39, and 41 over the art of record. By the present amendment and remarks, Applicants submit that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

***Amendment is Proper for Entry***

Applicants submit that, as the instant amendment is directed to address and overcome

formal matters, no question of new matter nor any new issues requiring further search or consideration by the Examiner are raised in entering the instant amendment.

Moreover, Applicants submit that, as the instant amendment places the application in condition for allowance, or at least materially reduces the number of issues for appeal, entry and consideration of the amendment is proper.

Accordingly, Applicants request that the Examiner enter the instant amendment, consider the merits of the same, and indicate that allowability of the instant application.

***Traversal of Rejection Under 35 U.S.C. § 112, Second Paragraph***

Applicants traverse the rejection of claims 1, 2, 11 - 27, 29 - 36, 38, 39, and 41 under 35 U.S.C. § 112, second paragraph, as being indefinite.

By the present amendment, independent claim 1 has been amended to address the formal matter noted by the Examiner. Moreover, Applicants have amended independent claim 1 to clarify that the recited elements are arranged to achieve the desired improved thermal conductivity for the elastic layer. Applicants submit that, as the instant amendment merely clarifies the previously recited features, the instant amendment is not a narrowing amendment made for any reason related to the Patent Act.

Accordingly, Applicants request that the Examiner reconsider and withdraw the formal rejection under 35 U.S.C. § 112, second paragraph, and indicate that these claims are allowable.

*Traversal of Rejection Under 35 U.S.C. § 102(b)*

1. Over Sukenik

Applicants traverse the rejection of claims 1 - 3, 11, 14 - 25, 28 - 32, 35, 36, 38, 39, and 41 under 35 U.S.C. § 102(b) as being anticipated by SUKENIK (U.S. Patent No. 3,852,862). The Examiner asserts that SUKENIK shows each recited feature of the above-noted claims.

Applicants' independent claim 1 recites, *inter alia*, an elastic coating layer comprising an elastic matrix material and fillers imbedded in said matrix material, wherein *a thermal conductivity of said fillers is considerably higher than a thermal conductivity of said matrix material*, and at least a portion of said fillers comprising metallic fillers arranged to improve thermal conductivity of said elastic coating layer, wherein said roller is structured and arranged for smoothing paper webs. Applicants submit that SUKENIK fails to disclose at least the above-noted features of the instant invention.

Applicants note that the instant amendment clarifies the recitation regarding the thermal conductivity of the fillers being considerably higher than the thermal conductivity of the matrix material. In particular, at least a portion of the fillers are metallic fillers arranged to improve the thermal conductivity of the elastic layer. In this regard, Applicants note that the mere inclusion of metallic fillers would not improve thermal conductivity of the layer, unless the fillers were arranged in accordance with the features of the instant invention.

Thus, Applicants submit that SUKENIK fails to anticipate the instant invention.

Applicants submit that, while SUKENIK discloses a sleeve 13 formed from a slurry prepared from fibers (which can include metallic wool) and various organic or inorganic binders, and the fibers in the slurry are deposited on a screen via a vacuum, there is no disclosure of a *thermal conductivity of fillers being considerably higher than a thermal conductivity of the matrix material*, as recited in at least independent claim 1, and certainly no disclosure of *arranging the metallic fillers to improve the thermal conductivity of the coating*, as is also recited in at least independent claim 1. As noted in the instant disclosure, *see, e.g.*, page 3, third paragraph, this feature enables the especially quick dissipation of heat, *e.g.*, in a direction toward the roll core.

Moreover, as discussed above, the mere presence of metal fibers, such as metallic wool in the coating does not necessarily improve the conductivity of the coating, unless arranged in the manner disclosed in the instant invention. As SUKENIK does not provide any teaching with regard to the arrangement of the metallic wool within the layer, Applicants submit that the document cannot anticipate the instant invention, which recites a specific arrangement of metallic fibers for improving the thermal conductivity of the coating.

Applicants further note that the coating of SUKENIK is formed from a slurry which is wholly distinct from the matrix material of the instant application. Accordingly, Applicants submit that SUKENIK cannot anticipate the features of the instant invention.

Further, Applicants note that SUKENIK is directed to a roll for carrying markable products through lehrs, furnaces, or ovens. As SUKENIK is designed to convey items from

one area to another, Applicants submit that SUKENIK fails to provide any teaching of a roller structured and arranged for smoothing paper webs, as recited in at least independent claim 1. Further, Applicants note that the Examiner has not set forth any documentary evidence to support his conclusion (nor can he) that SUKENIK has a surface structured and arranged for smoothing webs.

Applicants also note that, while he asserts that all metal fibers inherently have a higher thermal conductivity than inorganic or organic binders, the Examiner has not provided any documentary evidence to support his position. Moreover, Applicants submit that the Examiner's assertions cannot be sustained. Further, as SUKENIK does not provide any teaching or suggestion of what metal fibers are combined with what binders, Applicants submit that the Examiner cannot affirmatively state that SUKENIK anticipates each and every recited feature of the invention.

Because SUKENIK fails to disclose at least the above-noted features of the instant invention, Applicants submit that the applied document fails to disclose each and every recited feature of the invention. As such, Applicants submit that SUKENIK fails to provide an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), and that the instant rejection is improper and should be withdrawn.

Further, Applicant submits that claims 2, 11, 14 - 25, 29 - 32, 35, 36, 38, 39, and 41 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In

particular, Applicant submits that SUKENIK fails to anticipate, *inter alia*, said hard roller core comprises metal, and wherein said metallic fillers comprise metal, as recited in claim 2; at least a portion of said metallic fillers comprises one of metal fibers, metal rovings, metal-coated fibers, and metal-coated rovings, as recited in claim 11; at least a portion of said fibers is aligned in the axial direction, as recited in claim 14; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 15; at least a portion of said fibers is aligned in the radial direction, as recited in claim 16; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 17; at least a portion of said fibers is aligned in statistical distribution, as recited in claim 18; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 19; said fibers are arranged in one of a fiber layer and radially sequentially arranged fiber layers, as recited in claim 20; at least a portion of said metallic fillers are elastically formed, as recited in claim 21; said elastic layer further comprising additional fillers arranged in said elastic matrix material, as recited in claim 22; said additional fillers comprise fibers including at least one of carbon and glass fibers, as recited in claim 23; said additional fillers comprise at least one of quartz and PTFE, as recited in claim 24; said metallic fillers are arranged to extend up to a radially outer surface of said elastic matrix material, as recited in claim 25; a portion of said metallic fillers are arranged to extend radially inwardly up to a surface of said hard roller core, as recited in claim 29; a thermal expansion coefficient of said metallic fillers is smaller than a thermal expansion coefficient of said matrix material, as recited in claim 30;

said thermal expansion coefficient of said metallic fillers is substantially the same as a thermal expansion coefficient of said hard roller core, as recited in claim 31; said coating layer comprises a functional layer arranged in a radially outwardly region and a connecting layer arranged in a radially inwardly region, wherein said connecting layer is adapted to connect said functional layer to said hard roller core, and wherein said metallic fillers are arranged at least in said functional layer, as recited in claim 32; said matrix material comprises a resin-hardener combination, as recited in claim 35; a concentration of said metallic fillers is substantially uniformly distributed within said elastic matrix material, as recited in claim 36; said metallic fillers comprise at least one of metal fibers and metal coated fibers, as recited in claim 38; a concentration of said metallic fillers increases in a radially inwardly direction toward said hard roller core, as recited in claim 39; and said metallic fillers comprise at least one of metal fibers and metal coated fibers, as recited in claim 41.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1, 2, 11, 14 - 25, 29 - 32, 35, 36, 38, 39, and 41 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

2. Over Watanabe

Applicants traverse the rejection the rejection of claims 1 - 3, 11, 14 - 23, 25, 28 - 31, 33 - 36, and 38 under 35 U.S.C. § 102(b) as being anticipated by WATANABE (U.S. Patent No. 4,368,568).

Applicants note that, while WATANABE discloses an elastomeric material covered

roll, there is no teaching or suggestion of an elastic coating including an elastic matrix material and fillers imbedded in said matrix material, such that a thermal conductivity of said fillers is considerably higher than a thermal conductivity of said matrix material, as recited in at least independent claim 1. Further, Applicants submit that WATANABE also fails to disclose that at least a portion of said fillers comprise metallic fillers arranged to improve thermal conductivity of said elastic coating layer, as recited in at least independent claim 1.

Applicants note that, while WATANABE applies an elastomeric material over a layer having metal fibers, there is no disclosure regarding the thermal conductivity of these metal fibers, particularly with respect to the thermal conductivity of the elastomeric material. Further, Applicants submit that, as a first reinforcing layer 2a is formed of a cloth made of highly elastic inorganic fibers (including metal fibers), and that the cloth is impregnated with a thermosetting resin, there is no disclosure which anticipates the elastic matrix material of the instant invention. In this regard, Applicants submit that WATANABE discloses a cloth embedded with an elastomeric material, whereas the instant invention recites an elastic coating layer with embedded fillers.

Further, WATANABE fails to provide any teaching with regard to arranging the fibers in any manner which would improve the thermal conductivity of the coating, as recited in at least independent claim 1.

Because WATANABE fails to disclose at least the above-noted features of the instant invention, Applicants submit that the applied document fails to disclose each and every



recited feature of the invention. As such, Applicants submit that WATANABE fails to provide an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), and that the instant rejection is improper and should be withdrawn.

Further, Applicant submits that claims 2, 11, 14 - 23, 25, 29 - 31, 33 - 36, and 38 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that WATANABE fails to anticipate, *inter alia*, said hard roller core comprises metal, and wherein said metallic fillers comprise metal, as recited in claim 2; at least a portion of said metallic fillers comprises one of metal fibers, metal rovings, metal-coated fibers, and metal-coated rovings, as recited in claim 11; at least a portion of said fibers is aligned in the axial direction, as recited in claim 14; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 15; at least a portion of said fibers is aligned in the radial direction, as recited in claim 16; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 17; at least a portion of said fibers is aligned in statistical distribution, as recited in claim 18; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 19; said fibers are arranged in one of a fiber layer and radially sequentially arranged fiber layers, as recited in claim 20; at least a portion of said metallic fillers are elastically formed, as recited in claim 21; said elastic layer further comprising additional fillers arranged in said elastic matrix material, as recited in claim 22; said additional fillers comprise fibers including

at least one of carbon and glass fibers, as recited in claim 23; said metallic fillers are arranged to extend up to a radially outer surface of said elastic matrix material, as recited in claim 25; a portion of said metallic fillers are arranged to extend radially inwardly up to a surface of said hard roller core, as recited in claim 29; a thermal expansion coefficient of said metallic fillers is smaller than a thermal expansion coefficient of said matrix material, as recited in claim 30; said thermal expansion coefficient of said metallic fillers is substantially the same as a thermal expansion coefficient of said hard roller core, as recited in claim 31; said matrix material comprises a plastic material, as recited in claim 33; said plastic material comprises one of a thermosetting resin and a thermoplastic material, as recited in claim 34; said matrix material comprises a resin-hardener combination, as recited in claim 35; a concentration of said metallic fillers is substantially uniformly distributed within said elastic matrix material, as recited in claim 36; and said metallic fillers comprise at least one of metal fibers and metal coated fibers, as recited in claim 38.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1, 2, 11, 14 - 23, 25, 29 - 31, 33 - 36, and 38 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

3. Over Brouwer

Applicants traverse the rejection of claims 1 - 3, 11, 14 - 27, 29, 31, 36, 38, 39, and 41 under 35 U.S.C. § 102(b) as being anticipated by BROUWER (U.S. Patent No. 5,735,388).

Applicants submit that, Figure 5 of BROUWER discloses a friction-enhancing device in which grit material is dispersed in a layer of metallic material, and that there is no disclosure of the elastic coating layer recited in at least independent claim 1. Applicants also submit that BROUWER fails to provide any teaching of a *thermal conductivity of fillers being considerably higher than a thermal conductivity of the matrix material*, as recited in at least independent claim 1. Moreover, Applicants note that BROUWER provides no disclosure that metallic fillers are arranged to improve the thermal conductivity of the coating, as recited in at least independent claim 1.

Further, Applicants note that friction-enhancing grit is provided to facilitate movement of objects over the BROUWER conveyor rolls, and that these rolls are certainly not structured for smoothing a paper web, as recited in at least independent claim 1. In this regard, the Examiner has provided no documentary evidence to support his assertion (nor can he) that BROUWER is structured for smoothing a web, when in fact BROUWER expressly discloses that grit is provided to facilitate movement of objections.

Because BROUWER fails to disclose at least the above-noted features of the instant invention, Applicants submit that the applied document fails to disclose each and every recited feature of the invention. As such, Applicants submit that BROUWER fails to provide an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), and that the instant rejection is improper and should be withdrawn.

Further, Applicant submits that claims 2, 11, 14 - 27, 29, 31, 36, 38, 39, and 41 are

allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that BROUWER fails to anticipate, *inter alia*, said hard roller core comprises metal, and wherein said metallic fillers comprise metal, as recited in claim 2; at least a portion of said metallic fillers comprises one of metal fibers, metal rovings, metal-coated fibers, and metal-coated rovings, as recited in claim 11; at least a portion of said fibers is aligned in the axial direction, as recited in claim 14; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 15; at least a portion of said fibers is aligned in the radial direction, as recited in claim 16; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 17; at least a portion of said fibers is aligned in statistical distribution, as recited in claim 18; said at least a portion of said fibers comprises a predominant portion of said fibers, as recited in claim 19; said fibers are arranged in one of a fiber layer and radially sequentially arranged fiber layers, as recited in claim 20; at least a portion of said metallic fillers are elastically formed, as recited in claim 21; said elastic layer further comprising additional fillers arranged in said elastic matrix material, as recited in claim 22; said additional fillers comprise fibers including at least one of carbon and glass fibers, as recited in claim 23; said additional fillers comprise at least one of quartz and PTFE, as recited in claim 24; said metallic fillers are arranged to extend up to a radially outer surface of said elastic matrix material, as recited in claim 25; said metallic fillers are arranged to penetrate said radially outer surface, as recited in claim

26; a radially outer surface of said elastic matrix material is coated with metal, as recited in claim 27; a portion of said metallic fillers are arranged to extend radially inwardly up to a surface of said hard roller core, as recited in claim 29; said thermal expansion coefficient of said metallic fillers is substantially the same as a thermal expansion coefficient of said hard roller core, as recited in claim 31; a concentration of said metallic fillers is substantially uniformly distributed within said elastic matrix material, as recited in claim 36; said metallic fillers comprise at least one of metal fibers and metal coated fibers, as recited in claim 38; a concentration of said metallic fillers increases in a radially inwardly direction toward said hard roller core, as recited in claim 39; and said metallic fillers comprise at least one of metal fibers and metal coated fibers, as recited in claim 41.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1, 2, 11, 14 - 27, 29, 31, 36, 38, 39, and 41 under 35 U.S.C. § 102(b) and indicate that these claims are allowable.

***Traversal of Rejection Under 35 U.S.C. § 103(a)***

Applicants traverse the rejection of claims 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over SUKENIK.

Applicants again note that SUKENIK fails to provide any teaching or suggestion of a roller structured and arranged for smoothing a paper web. Further, there is no teaching or suggestion provided within the disclosure of SUKENIK which would render obvious an elastic layer including a matrix material and metallic fibers, particularly in which a thermal

conductivity of the fillers is considerably higher than a thermal conductivity of the matrix material, as recited in at least independent claim 1. Further, since, as noted above, the mere presence of metal fibers is not sufficient to improve thermal conductivity of the coating, Applicants submit that SUKENIK fails to provide any teaching or suggestion of arranging the metallic fillers to improve the thermal conductivity of the coating.

In fact, Applicants note that SUKENIK does not provide any teaching or suggestion of any benefits that could be attained by improving the thermal conductivity of the coating, in the manner set forth in the instant invention. As such, Applicants submit that one ordinarily skilled in the art reviewing SUKENIK would not appreciate the heat dissipation characteristics available by a particular arrangement of the metallic fillers, unless they had also reviewed the instant specification. In other words, Applicants submit that only reason for modifying SUKENIK in the manner asserted by the Examiner is by the application of impermissible hindsight after reviewing the instant disclosure, which renders the rejection improper.

Further still, Applicants note that SUKENIK fails to provide any suggestion that the roller is structured and arranged for smoothing webs, and that, unless reviewing the present disclosure, there is no motivation or rationale for modifying SUKENIK in the manner asserted by the Examiner.

Because SUKENIK fails to teach or suggest at least the above-noted features of the instant invention, Applicants submit that SUKENIK fails to render unpatentable the

combination of features recited in at least independent claim 1, and, therefore, fails to render the instant invention unpatentable under 35 U.S.C. § 103(a).

Further, Applicant submits that claims 12 and 13 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant submits that no proper modification of SUKENIK teaches or suggests, *inter alia*, the at least a portion of said metallic fillers comprises one of metal-coated fibers and metal-coated rovings, as recited in claim 12; and fibers of said one of said metal-coated fibers and said metal-coated rovings comprise at least one of carbon and glass, as recited in claim 13.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 12 and 13 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

***Application is Allowable***

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

***Authorization to Charge Deposit Account***

The Commissioner is authorized to charge to Deposit Account No. 19 - 0089 any necessary fees, including any extensions of time fees required to place the application in

condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

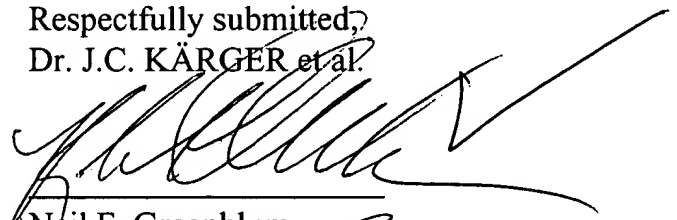
**CONCLUSION**

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 3, 11 - 27, 29 - 36, 38, 39, and 41. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.


Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,  
Dr. J.C. KÄRGER et al.



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**APPENDIX**

***Marked-Up Copies of the Amended Claims:***

1. (Twice amended)      An elastic roller comprising:  
  
a hard roller core;  
  
an elastic coating layer at an outer side of said hard roller core;  
  
said elastic coating layer comprising an elastic matrix material and fillers imbedded  
in said matrix material, wherein a thermal conductivity of said [metallic] fillers is  
considerably higher than a thermal conductivity of said matrix material;  
  
at least a portion of said fillers comprising metallic fillers arranged to improve thermal  
conductivity of said elastic coating layer, wherein said roller is structured and arranged for  
smoothing paper webs.